

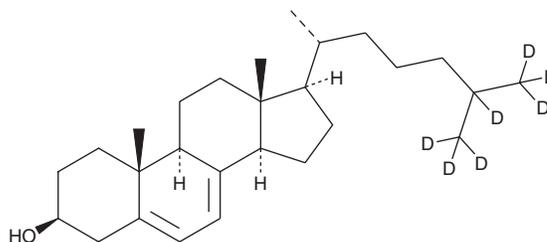
# PRODUCT INFORMATION



## 7-dehydro Cholesterol-d<sub>7</sub>

Item No. 25969

**CAS Registry No.:** 388622-58-0  
**Formal Name:** cholesta-5,7-dien-25,26,26,26,27,27,27-d<sub>7</sub>-3β-ol  
**Synonyms:** Δ<sup>7</sup>-Cholesterol-d<sub>7</sub>, 7-DHC-d<sub>7</sub>, Provitamin D<sub>3</sub>-d<sub>7</sub>  
**MF:** C<sub>27</sub>H<sub>37</sub>D<sub>7</sub>O  
**FW:** 391.7  
**Chemical Purity:** ≥90% (7-dehydro Cholesterol)  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>7</sub>); ≤1% d<sub>0</sub>  
**Supplied as:** A solid  
**Storage:** -20°C  
**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

7-dehydro Cholesterol-d<sub>7</sub> is intended for use as an internal standard for the quantification of 7-dehydro cholesterol (Item No. 14612) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

7-dehydro Cholesterol-d<sub>7</sub> is supplied as a solid. A stock solution may be made by dissolving the 7-dehydro cholesterol-d<sub>7</sub> in the solvent of choice, which should be purged with an inert gas. 7-dehydro Cholesterol-d<sub>7</sub> is soluble in methanol (warmed) and is slightly soluble in chloroform.

### Description

7-dehydro Cholesterol (7-DHC) is an immediate precursor of cholesterol.<sup>1</sup> It is reduced to cholesterol by the enzyme 3β-hydroxysterol-Δ<sup>7</sup>-reductase (DHCR7) in the last step of cholesterol biosynthesis. It accumulates in Smith-Lemli-Opitz syndrome (SLOS), a disorder characterized by a mutation in the *DHCR7* gene and decreased cholesterol levels in bodily tissues and fluids, as well as microcephaly, intellectual disability, and distinctive dysmorphic features.<sup>1,2</sup> 7-DHC is highly susceptible to free radical oxidation, giving rise to several oxysterols that may be involved in the pathogenesis of SLOS.<sup>1</sup> 7-DHC levels are increased in brain, liver, and serum in a rat model of SLOS induced by the DHCR7 inhibitor AY 9944 (Item No. 14611).<sup>1</sup> 7-DHC is also a provitamin that is converted to vitamin D<sub>3</sub> (Item No. 11792) by ultraviolet-B (UVB) light in a human skin equivalent system and in isolated human skin samples.<sup>3,4</sup>

### References

1. Xu, L., Liu, W., Sheflin, L.G., et al. *J. Lipid Res.* **52**(10), 1810-1820 (2011).
2. Xu, G., Salen, G., Shefer, S., et al. *J. Clin. Invest.* **95**(1), 76-81 (1995).
3. Lehmann, B., Genehr, T., Knuschke, P., et al. *J. Invest. Dermatol.* **117**(5), 1179-1185 (2001).
4. Chen, T.C., Chimeh, F., Lu, Z., et al. *Arch. Biochem. Biophys.* **460**(2), 213-217 (2007).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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